

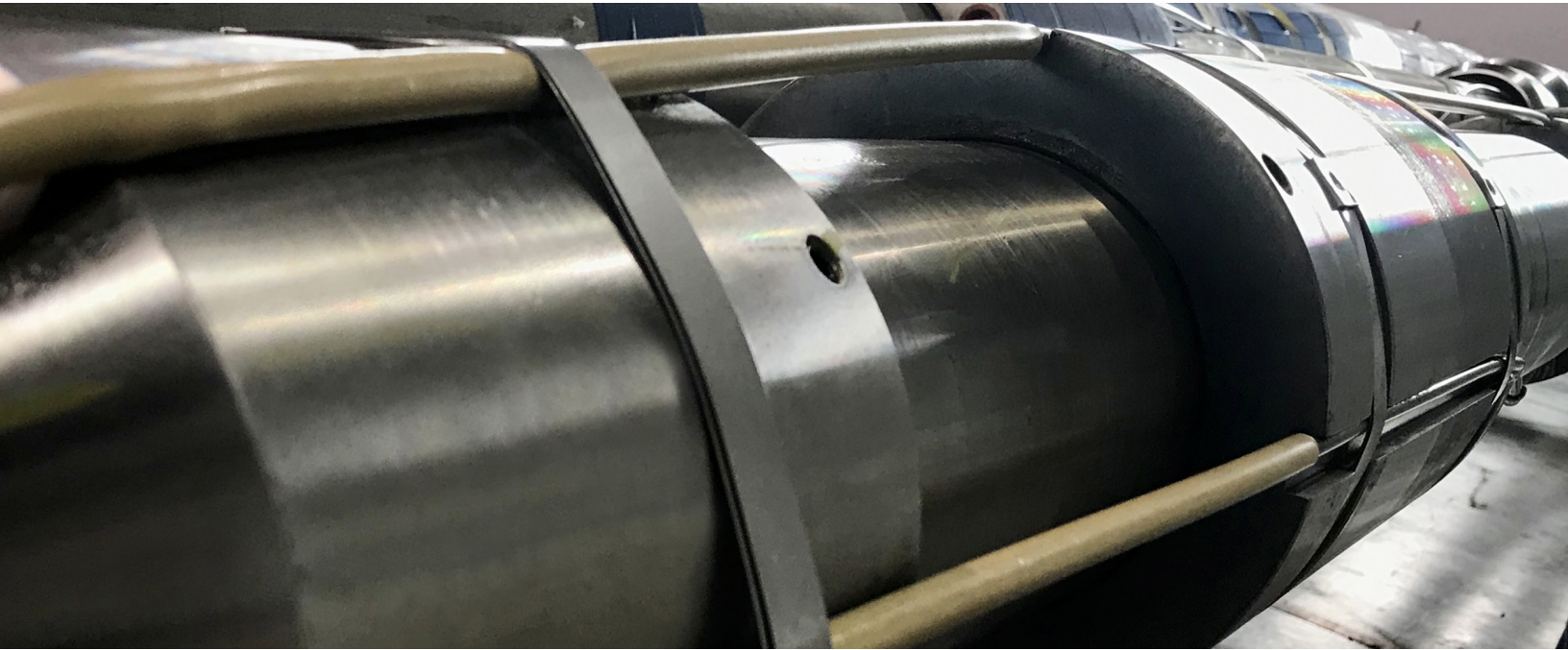


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COMPLETION SERVICES

# SECTION 7

## Intelligent Systems



## **INTELLIGENT SYSTEMS**

Hydraulic Actuated Well Completion (HAWC™) System	1
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## Hydraulic- Actuated Well Completion (HAWC™) System

**HAWC™** is Superior's intelligent well completion package, consisting of a pass-through production packer and independently operated hydraulic control sleeves. The system has numerous applications in deepwater, multizone, high-angle completions, and production field management. It provides flexibility to selectively control flow from various zones in a single well and has the capability to remotely shift between producing zones, thereby maximizing overall production. With real-time measurement of downhole temperature and pressure, operators can isolate and adjust the internal flow. The HAWC™ system is known for its reliability, and provides consistent long-term performance in challenging downhole environments.

### APPLICATIONS

- Deepwater wells
- Multizone completions
- Remote production/injection access
- High-angle completions
- Production field management

### Features and Benefits

- Reliably and economically controls multiple completions in a single well and remotely shifts production between zones to optimize field production
- Provides an additional barrier for well control operations when demobilizing the rig
- The HAWC well completion package includes:
  - HAWC system valves that allow remote flow control of multiple zones
  - High-pressure isolation production packer with multiple pass-throughs
  - The integration of surveillance equipment that provides real-time, reliable, multizone measures of downhole temperature and pressure



# Hydraulic-Actuated Well Completion (HAWC™) System

## SYSTEM COMPONENTS

1. Hydraulic Set Instring Pass Through Packer (cut or shear release)
2. Break assembly
3. Upper HAWC System Valve (w/ "R" Profile Sub)
4. Lower HAWC System Valve (w/ "R" Profile Sub)
5. Pressure containing shroud assembly

## TECHNICAL DATA

Differential Pressure Rating	Up to 15,000 psi (103.42 MPa) VO Rated w/ 10% Safety Factor and Temperature De-Rated
Maximum Temperature	350°F (177°C)

Hydraulic-Actuated Well Completion (HAWC™) System													
Casing Size		Casing Drift Diameter		Lower Sleeve				Upper Sleeve				Connection	
inch	mm	inch	mm	Size		ID		Size		ID		inch	mm
9 5/8	244.5	8.5	2.159	3.5	88.9	2.75	69.9	3.5	88.9	2.75	69.9	3.437	76.2
						2.813	71.45	4.5	114.3	3.347	85.013		
9 7/8	250.8	8.5	2.159	3.5	88.9	2.75	69.6	3.5	88.9	2.75	69.9	3.437	76.2
						2.813	71.45	4.5	114.3	3.347	85.013		
10 3/8	257.17	8.5	2.159	3.5	88.9	2.75	69.6	3.5	88.9	2.75	69.9	3.437	76.2
						2.813	71.45	4.5	114.3	3.347	85.013		

## REFERENCES

HydroSeal HP-PT packer data sheet  
HAWC system accessories data sheet  
HAWC system valve data sheet  
TIP-PT packer data sheet  
Turner, D. 2006. Smart Well, Deepwater Solutions Petroleum Africa 4 (1)  
Burman, J.W., Renfro, K.D., Conrad, M., Parker, C., Turner, D., and Franklin, B. 2005. Design Considerations for Interventionless, Commingled Multizone Selective Sand Control Deepwater Completions. Paper SPE 95598 presented at SPE Annual Technical Conference and Exhibition, Dallas, Texas, 9-12 October.  
Johnson D.E., Turner, D., Walker, D.J., Harris, D. and McDaniel D. 2002. Reliable and Completely Interventionless Intelligent Well Completion Technology: Application and Field Study. Paper OTC 14252 presented at the Offshore Technology Conference, Houston, Texas 6-9 May

## CompPro™ Elite Packer

The Superior Completion Services **CompPro™ Elite Retrievable Production Packer** is a family of workstring conveyed, hydraulic-set, retrievable, sealbore production packers. These packers are designed specifically for high-pressure high-temperature (HPHT) environment and are qualified to the most stringent API11D1 validation grade V0-H.

### APPLICATIONS

- Production packer
- Pass-thru packer for intelligent completion
- Horizontal and vertical wells
- Zonal isolation; production isolation

### Features and Benefits

- Rated up to 17,500 psi (1207 bar) and 300°F (149°C)
- API 11D1 – V0H validation ensures gas-tight sealing in HPHT and severe downhole environment
- Primary cut-to-release with a secondary external retrieval option
- Consists of a dedicated primary and secondary cutting zones for contingency
- Single sealing packing element with proprietary backup for reliable performance under challenging conditions
- Proprietary slip design for 360-degree engagement and force distribution, withstand high tensile - compressive loads, and easy retrieval
- Active zero-motion feature to prevent unnecessary packer movement under extreme stress or differential unloads
- QTY 3x ½ in (12.7 mm), 4x ¼ in (6.35 mm) of maximum pass-throughs
- Seamless conversion to non-Pass-thru packer to meet the needs of various applications
- API 11D1 validation and SCS quality management system API Q1 certification allows for optional API monogram

### TECHNICAL DATA

Casing sizes	10 1/8 in., 9 7/8 in. and 7 3/4 in. (non PT). (257.2 mm, 250.8 mm and 196.85 mm)
Differential pressure rating	17,500 psi (1,207 bar)
Temperature rating	300°F (149°C)

### REFERENCES

Completion tools seal systems data sheet

